

# THE INFLUENCE OF PHARMACEUTICAL CARE SERVICES MODEL IN PRESCRIPTION DRUGS ON PHARMACIST'S BEHAVIOR IN PHARMACEUTICAL CARE

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## INTRODUCTION

Pharmaceutical care is an important element in providing health services that must be integrated with other elements where pharmacist has responsibility in the quality of such cares (Gennaro, 2000). Pharmaceutical care is generally based on pharmacist's responsibilities to guarantee conformity, effectiveness, and safety of drug therapy by identifying, preventing, as well as solving problems of drug therapy received by patient.

Pharmaceutical care as a practical guidance is described into three activities: 1) assessing patient's needs regarding drug therapy, 2) making care plans, 3) following up care plans and evaluating. An approach is needed to assess patient's needs regarding the used drugs which can cover precision of indication, capable to achieve therapy effects, security and conformity of drug usage.

Therapeutic communication between pharmacist and patient becomes the absolute requirement in performing pharmaceutical care. The finding of research conducted by Research Center of Ministry of Health that was taken in five provinces in Indonesia stated that pharmacist as the person in charge in the lack of communication happened in the drugstore between pharmacist and consumers in particular and society in general (Zalbawi, 1991).

In the research conducted by Indri Mulyani Bunyamin (2005), it was found that 69.9% pharmacists works in the drugstores around DKI Jakarta have high quality practices particularly in the practical management and accountability, but still have low pharmaceutical care.

The finding of the research on the implementation of pharmaceutical care in prescribed drug service found that pharmacists' activity in assessing prescription completeness, 3.8% bad of doctors' prescription, dentists' prescription, and veterinaries' prescription; 2.9% bad of drug preparation and dispensing; 21.5% bad of assessment of patient's drug therapy; 33.3% bad of making plans for patient's drug therapy; 41.9% bad of evaluation and following up patient's drug therapy (Athiyah, 2005). The finding indicates that pharmacists are still oriented on drug supply as product, while patient's

needs-oriented which is usually described as the effort to improve life quality is still ignored.

Based on the description and the fact above, there are lot of issues that must be explored further about how pharmaceutical care as a philosophy is implemented in the form of pharmacists' task behavior in drugstore. Thus, this study examined pharmacists' behavior in pharmaceutical care. The general objective of this study is to create pharmaceutical care model of prescribed drug service and its influences on the pharmacists' behavior in pharmaceutical care.

## METHODS

Pre experimental was taken as the research model, used intervention using pharmaceutical care module (e.g. anti-diabetes oral). The data source of this research was primary data taken through questionnaire. Populations in this study were all pharmacists in Surabaya and Sidoarjo who met the following criteria:

- 1) Engaging in the management and services at drugstore
- 2) Willing to be respondent of this research until the research is completed
- 3) The drugstore is not located at hospital
- 4) Not a state-owned drugstore

Sample of this research were pharmacists who represent the population. The number of sample (n) taken from the population in this study was calculated as below (Kuntoro, 1997):

$$n = \frac{\left[ \sigma \left( Z_{\frac{1}{2}\alpha} + Z_{1-\beta} \right) \right]^2}{d^2}$$

Based on the formula and data, 34 persons were taken as the sample of this study. Simple random sampling was taken as the sampling technique.

Free variable in this study was the model of pharmaceutical care in prescribed drug service, while bound variable was pharmacists' behavior in performing pharmaceutical care were:

- 1) Pharmacists' knowledge about pharmaceutical care (Y1)

- 2) Pharmacists' attitude on pharmaceutical care (Y2)
- 3) Pharmacists' practices in pharmaceutical care (Y3)

Validity test used in this study was Pearson Product Moment which correlated items with the total that has been initially reduced by the item itself or mostly known as corrected item total correlation. Comparing counts  $r$  with standard  $r$ . Solimun (2002) set up 0.3 as the standard value. Validity and reliability were tested on the data which is resulted from pretest respondent. All pretest respondents were 34 persons, while only 29 respondents were taken as sample to be tested the validity and reliability. The result of validity test was carried out on each aspect in the knowledge, behavior, and practice variable.

1-year study from late May 2005 until June 2006 was conducted on some drugstores located in Surabaya and Sidoarjo.

Data analysis used the steps below:

1. Chi Square One Sample test for matching the data gaps of recent pharmaceutical care behavior on the model of pharmaceutical behavior
2. Regression test to determine parameter correlation of pharmaceutical care knowledge, behavior, and practices.
3. T-test to determine differences among pharmaceutical care knowledge, behavior, and practices parameter before and after model training.
4. Multivariate anova test to determine the impact among pharmaceutical care knowledge, behavior, and practices parameter.

**RESULT AND DISCUSSION**

Total respondents in this study were 34 respondents. Based on the age characteristic, half of total respondents or 50% respondents were aged 31-40 years old. Based on the characteristic of graduation year, 41.2% respondents were graduated on 1995-2000. Based on the year of employment, pharmacist who works as pharmacist manager in the drugstore, most of them had 5-10 years of employment. Based on the regular attendance, most respondents were present in the drugstore >3 times a week in which as much as 91.2% respondents. Recapitulation of dominant category based on the answer of knowledge, attitude and practice parameter can be seen in Table 1.

**Table 1 Recapitulation of Dominant Category Based on the Answer of Knowledge, Attitude, and Practice Parameter**

Parameter	Pretest		Posttest	
	Dominant Category	p	Dominant Category	p
<b>Knowledge</b>				
The knowledge of pharmaceutical care concept	DNK	0,001	T	<b>0,016</b>
The knowledge of building patient's trust on pharmacist	DNK	0,001	T	<b>0,001</b>
The knowledge of probing patient's understanding	T	0,001	T	<b>0,001</b>
The knowledge of probing patient's hope	DNK	0,001	T	<b>0,001</b>
The knowledge of probing patient's awareness		0,151	T	<b>0,002</b>
The knowledge of probing patient's behavior	F	0,001	T	<b>0,021</b>
<b>Attitude</b>				
The attitude on pharmaceutical care concept	SA	0,001	SA	<b>0,001</b>
The attitude of building patient's trust on pharmacist		0,170	SA	<b>0,001</b>
The attitude of probing patient's understanding		0,303	SA	<b>0,001</b>
The attitude of probing patient's hope		0,152	SA	<b>0,001</b>
The attitude of probing patient's awareness		0,282	SA	<b>0,001</b>
The attitude of probing patient's behavior		0,152	SA	<b>0,001</b>
<b>Practice</b>				
The practice of building patient's trust on pharmacist	O	0,001	O	<b>0,001</b>
The practice of probing patient's understanding		0,101	Al	<b>0,015</b>
The practice of probing patient's hope	O	0,001	O	<b>0,020</b>
The practice of probing patient's awareness		0,074		<b>0,139</b>
The attitude of probing patient's behavior	R	<b>0,001</b>		<b>0,249</b>

Note: DNK=Do Not Know, T=True, F=False, SA=Strongly Agree, T=Tentatively, O=Often, Al=Always, R=Rarely

**T-test on the Implementation of Pharmaceutical Care Model**

**The Knowledge of Pharmaceutical Care**

The result of t-test indicated that all constituent parameter "the knowledge of pharmaceutical care" have different significance unless the constituent parameter of "the knowledge to probe patient's understanding about drug therapy". This finding indicates that this model training can change pharmacists' knowledge about pharmaceutical care because this parameter has been understood since before training the model of pharmaceutical care.

This condition might be affected by some other factors:

1. The concept of pharmaceutical care is a new knowledge for pharmacists, particularly for those who were graduated before this.
2. Well-established pharmacists mostly forget about their responsibility to always keep learning during their profession (Smith, 1992).
3. The lack of relationship between universities and occupational organizations.

#### **The Attitude of Pharmaceutical Care**

The result of t-test indicated that all constituent parameters of "the attitude of pharmaceutical care" has no significant different unless the constituent parameter of "the attitude on pharmaceutical care concept". This finding indicates that new pharmacists will agree upon the concept of pharmaceutical care but has not reached the detailed implementation of pharmaceutical care. The knowledge possessed by new pharmacists is formed after conducting training then attitude will change once knowledge has been formed; although sometimes knowledge had been formed but had not affected the attitude. This is likely due to the short training time.

#### **The Practices of Pharmaceutical Care**

The result of t-test indicated that all constituent parameters of "the practices of pharmaceutical care" has no significant difference unless the constituent parameter of "the practices of probing patient's awareness about drug therapy". This finding indicates that the training of pharmaceutical care model is capable to give emphasis on the existence of pharmacists' practices who care about patient's safety on drug therapy. Thus, pharmacists have been able to think about quality of patient's life. In the constituent indicator of "the practices of building patient's trust on pharmacist", in which "I signed on the prescriptions that have been read as the form of pharmacist's responsibility"; as well as in the indicator of "I noted the results of patient's, drugs', and prescriptions' assessment as well as drug-related problems", the highest response percentage is in the never category. Thus, this training has not yet motivated the practical changes of registration, which means that pharmacists still use old paradigm—the dispensing pharmacy, in which the orientation of registration is only to meet regulations of product related. While on the other hand, the new paradigm—pharmaceutical care, the orientation of registration is meant to support the provided pharmaceutical care (Cipolle, 1998).

#### **The Behavior of Pharmaceutical Care**

After conducting t-test on three constituent variables of pharmaceutical care behavior namely knowledge, attitude, and practice before and after training, the result indicated that there is significant difference in the knowledge variable of

pharmaceutical care. The data indicates that training has not yet able to change pharmaceutical care practice in a whole way. This is likely due to the lack of time and appropriateness of training method. However by the changes in pharmaceutical care knowledge, it is expected that there is a process of behavioral changes that will shape pharmacists' attitude in pharmaceutical care. This data is supported by the result of Manova test in the impact of knowledge on pharmaceutical care attitude and practice. This finding is consistent with the theory proposed by Rogers (1974) in Notoatmodjo (2003) which stated that before adopting new behavior, sequential process has occurred inside someone, namely: 1) Awareness which is a condition when someone has realized, which in this term is knowing stimulus (object) before hand; 2) Interest, a condition when someone begins to interest with stimulus; 3) Evaluation (evaluating the good and bad side of the stimuli for him/herself), which means that the attitude of the respondents have been better; 4) Trial, a condition when someone begins to try new behavior; 5) Adaptation, when subject has adapted new behavior based on the knowledge, consciousness, and attitude on the stimulus.

#### **The Effect of Knowledge on Pharmaceutical Care Behavior and Practice**

From the data that has been determined, the temporal conclusion can be drawn that if the training of pharmaceutical care modul in this research is conducted simultaneously with proper training method, it will resulted in the behavioral changes of pharmaceutical care practices which is in accordance with behavioral theory. Competencies that consist of knowledge, attitude and psychomotor are the factors that measure occupational abilities in implementing practices. The attitude of pharmaceutical care which has developed by those three domains depicts the competence of pharmaceutical care.

#### **The Correlation between Knowledge, Attitude, and Practice of Pharmaceutical Care Services of Prescribed Drugs**

The result of regression test before training the module indicated that there is correlation between "the knowledge of probing patient's understanding about drug therapy" with "the attitude of probing patient's understanding about drug therapy". Another result of regression test after training module indicated that there is correlation between "the knowledge of pharmaceutical care concept" with "the knowledge of building patient's trust on pharmacist" and "the knowledge of probing patient's hope about drug therapy". The result of regression test before and after training the module also indicated that there is correlation between "the attitude on pharmaceutical care concept" with all "attitude on pharmaceutical care" except "the attitude of probing patient's adherence behavior

about drug therapy” and “the attitude of probing patient’s hope about drug therapy” (Table 2).

**Table 2 Regression Test on Knowledge, Attitude, and Practice Parameter of Pharmaceutical Care**

Free variable	Bound variable	Pretest		Posttest			
		p	Beta	p	Beta		
<b>The knowledge of pharmaceutical care concept</b>	The knowledge of building patient’s trust on pharmacist by verifying patient, drugs, and prescription	0,053	0,334	0,003	<b>0,491</b>		
	The knowledge of probing patient’s understanding	0,836	0,037	0,275	<b>0,193</b>		
	The knowledge of probing patient’s hope	0,099	0,288	0,001	<b>0,659</b>		
	The knowledge of probing patient’s awareness	0,056	0,331	0,294	<b>0,186</b>		
	The knowledge of probing patient’s behavior	0,117	0,274	0,361	<b>0,162</b>		
	The attitude on pharmaceutical care concept	0,437	0,138	0,072	<b>0,312</b>		
	<b>The knowledge of building patient’s trust on pharmacist by verifying patient, drugs, and prescription</b>	The attitude of building patient’s trust on pharmacist by verifying patient, drugs, and prescription	0,143	-0,256	0,688	<b>0,071</b>	
		<b>The knowledge of probing patient’s understanding</b>	The attitude of probing patient’s understanding	0,014	0,416	0,103	<b>0,285</b>
The attitude of probing patient’s hope			0,296	0,184	1,000	<b>0,001</b>	
The knowledge of probing patient’s awareness			0,694	0,070	0,149	<b>0,253</b>	
The knowledge of probing patient’s behavior			0,487	0,123	0,483	<b>0,125</b>	
<b>The attitude on pharmaceutical care concept</b>			The attitude of building patient’s trust on pharmacist by verifying patient, drugs, and prescription	0,001	0,576	0,001	<b>0,605</b>
			The attitude of probing patient’s understanding	0,004	0,479	0,005	<b>0,467</b>
			The attitude of probing patient’s hope	0,003	0,488	0,309	<b>0,180</b>
	The attitude of probing patient’s	0,009	0,442	0,041	<b>0,352</b>		

	awareness				
	The attitude of probing patient’s behavior	0,004	0,482	0,066	<b>0,319</b>
	The practice of building patient’s trust on pharmacist by verifying patient, drugs, and prescription	0,082	-0,050	0,463	<b>0,159</b>
	The practice of probing patient’s understanding	0,006	-0,528	0,828	<b>0,038</b>
	The practice of probing patient’s hope	0,635	0,085	0,403	<b>0,158</b>
	The practice of probing patient’s awareness	0,644	-0,087	0,717	<b>0,068</b>
	The practice of probing patient’s behavior	0,212	0,206	0,748	<b>0,054</b>
<b>The attitude of building patient’s trust on pharmacist by verifying patient, drugs, and prescription</b>	The practice of building patient’s trust on pharmacist by verifying patient, drugs, and prescription	0,935	-0,019	0,696	<b>0,085</b>
	<b>The attitude of probing patient’s understanding</b>	The practice of probing patient’s understanding	0,143	0,270	0,004
<b>The attitude of probing patient’s hope</b>	The practice of probing patient’s hope	0,228	0,218	0,098	<b>0,319</b>
<b>The attitude of probing patient’s awareness</b>	The practice of probing patient’s awareness	0,163	0,265	0,067	<b>0,357</b>
<b>The attitude of probing patient’s behavior</b>	<b>The practice of probing patient’s behavior</b>	<b>0,016</b>	<b>0,414</b>	<b>0,003</b>	<b>0,550</b>

**CONCLUSION**

1. The pharmaceutical care services were developed from pharmacists’ behavior including knowledge, attitude and practice.
2. The knowledge parameters consist of the knowledge of pharmaceutical care concept, The knowledge of building patient’s trust on pharmacist, The knowledge of probing patient’s understanding, The knowledge of probing patient’s hope, The knowledge of probing patient’s awareness, and The knowledge of probing patient’s behavior.
3. The attitude parameters consist of the attitude on pharmaceutical care concept, The attitude of building patient’s trust on pharmacist, The attitude of probing patient’s understanding, The attitude of probing patient’s hope, The attitude of probing patient’s awareness and The attitude of probing patient’s behavior.

4. The Practice parameters consist of The practice of building patient's trust on pharmacist , The practice of probing patient's understanding, The practice of probing patient's hope, The practice of probing patient's awareness, and The attitude of probing patient's behavior.
5. There was a gap behavior of pharmaceutical care at this time by the behavior of pharmaceutical care model developed pharmaceutical care.
6. The model of pharmaceutical care services prescription drugs increased the knowledge of the pharmacist in pharmaceutical care, pharmacists attitude towards the concept of pharmaceutical care and patient care practices digged pharmacist about prescription drug therapy.

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